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EXAMINER
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ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	10/635,367	GONG ET AL.
Office Action Summary	**Examiner**	**Art Unit**	
	Wayne Cai	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 May 2006</u>.
2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-42,45-94,96-98 and 101-108</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-42,45-94,96-98 and 101-108</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Claims 1-42, 45-94, 96-98 and 101-108 are pending.

Response to Arguments

1.   Applicant's arguments filed May 05, 2006 have been fully considered but they are not persuasive.

In response to the arguments of independent claims 1, 75, and 108 on page 19, specifically the Applicant argues that Benes fails to teach "calculation logic for determining receive signal strength differences of a signal, said signal received using said multiple antenna patterns." The Examiner respectfully disagrees with the statement above because the Examiner relies on the cited reference for the fact that based on the ERPs, the mobile station 160 may calculate a signal difference (SD) between the peaks of the downlink signals 802, 804 associated with the antennas corresponding to the first and second sectors 202, 204. Clearly, this passage describes a system comprises a calculation logic for determining receive signal strength difference, inherently, a signal received, and using multiple antenna patterns in the first and second sector 202, 204.

Therefore, claims 3, 76, 87, 105, and 106 are also rejected for the same reasons set forth above.

With respect to claim 38, the Applicant argues that the combination of Reed and Riley fails to teach or suggest "location estimation logic for determining an estimated location of said device from an intersection point of arcs projected identified distances from said wireless network access node and said second wireless network access node." The Examiner respectfully disagrees with the statement because Riley does teach the claimed feature. Specifically, Riley teaches base transceiver subsystem (BTS) 105a-105d (see fig. 2), which is the wireless network access node, and second wireless access node, and so on. Riley further teaches the expected areas A-E, which is interpreted as an estimated location. Also, Riley states that terminal 106 is located in/near an overlapping region of expected areas A and D. Expected areas A and D are overlapped means that the expected area A intersects with expected area D. Hence, the estimated location of device is within the expected area A and D.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Benes teaches method and mobile station for autonomously determining an angle of arrival estimation. Riley teaches two multi-beam antennas laterally spaced from each other, each provide coverage of an azimuth sector for receiving signals from a system user. Riley, on the

other hand teaches an area based position determination for terminals in a wireless network. Finally, Reed teaches or suggests method and system for estimating a subscriber's location in a cluttered area. The combination of these references teaches or suggests method and system of using gain differences, and angle of arrival to determine or estimate the position of the device. In addition, the cited references are in the same field of endeavor; therefore, it would be appropriate to combine and modify the submitted references to arrive at the present invention.

In response to arguments with respect to claims 27-31, 88-90 on pages 24-25, claims 64-68, 102-104 on pages 29-30, the Examiner hereby respectfully submits a few documentations to support the obviousness statements made in previous office action and further explain why security logic for preventing access to a wireless network by the device, location-based access security logic providing levels of access to a wireless network by the device, content delivery logic for providing content via a wireless network to the device, management logic for providing management of at least one of wireless communications and wireless communication system resources, or asset tracking logic for providing at least one of asset tracking and asset inventorying automatically as a function of the identified closest match is obvious and known in the art. Firstly, the "closest match" is used and considered to be the identified location. Furthermore, the claims recite that security logic, location-based access security logic, content delivery logic, management logic, or asset tracking logic is the function of the identified closest match, which means that based on the location identified, then the system would deliver a particular content, or prevent or limit to certain accessibility to a particular subscriber,

or tracking the device based on the identified location. Since the system has ability to provide a secured network, content delivery, etc.; therefore, it is also obvious that the management logic (i.e., the system) provides management to the wireless communications and wireless communication system resources. These claimed features are known in the art, but in order to convince the Applicant, the references below teach or suggest the mentioned-above features.

Day et al. (US 7,020,476) teaches a secure wireless network that includes multiple receiver nodes, and a system for determining the position of the nodes. Based on the identified position, a wireless network prevents rogue access by unauthorized wireless nodes attempting to transmit wireless frames onto the wireless network (i.e., security logic for preventing access to a wireless network by the device as a function of said identified position.) The Examiner also notes that "authorized" and/or "unauthorized" is broadly interpreted as two different levels of access. Hence, the system of Day teaches whether or not the wireless nodes is authorized to transmit wireless frames on the secured wireless network reads on the claimed features of claim 65 as well.

Knauerhase et al. (US 2003/0104819) teaches automatically updating presence information. Knauerhase specifically teaches the step of determining location of the mobile devices, and provides service corresponds to the location of that particular mobile device, in which it reads on content delivery logic for providing content via a wireless network to said device as a function of said identified closest match.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1, 3, 75-76, 87, 105-106, and 108 are rejected under 35 U.S.C. 102(e) as

being anticipated by Benes et al. (hereinafter "Benes", US 2004/0203539 A1).

Regarding claims 1, 75, 76, and 105-106, Benes discloses a system, a method

comprising:

a database (i.e., a data storage, paragraph 0028) containing antenna gain

differences between multiple antenna patterns of a wireless network access node

(paragraphs 0021-0023);

calculation logic for determining receive signal strength differences of a signal,

said signal received using said multiple antenna patterns, said signal being transmitted

by a device disposed within one or more of said multiple antenna patterns (paragraph

0026);

comparison logic for comparing said receive signal strength differences to said

antenna gain differences and identifying a closest match (paragraph 0027).

Regarding claims 3, and 87, Benes discloses the system, and method of claims

1, and 75 as described above. Benes also discloses wherein said database contains

antenna gain differences associated with each antenna pattern of said wireless network

access node (paragraph 0026).

Regarding claim 108, Benes discloses a system for providing location

positioning of a device in a wireless network, said system comprising: a channel model

independent determination algorithm utilizing receive signal strength differences

between multiple receive antenna patterns of a wireless network node (paragraphs

0026-0027), and antenna gain differences between said multiple antenna patterns to

determine information with respect to a position of said device (box 1020 and its

descriptions).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 2, and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Benes in view of Newman (US – 5,581,260).

Regarding claims 2, and 86, Benes discloses the system, and method of claims

1, and 75 as described above, except wherein said database contains antenna gain

differences between multiple narrow antenna patterns and a wide antenna pattern.

In a similar endeavor, Newman discloses an angular diversity/spaced diversity

cellular antennas and methods. Newman further describes at column 1, line 54 –

column 2, line 7, "Use of higher gain receive antennas at each cell site would permit reliable reception of user signals at greater distances. However, for a given type of antenna, gain is directly related to beamwidth and an antenna providing coverage over a 120 degree azimuth sector typically provides relatively low gain performance. High gain may be achievable by use of larger antennas, however size and cost may become limiting factors. Higher gain is also possible by use of narrow beamwidth antennas providing coverage of only a portion of a sector. Use of antenna systems providing sector coverage by provision of a plurality of narrow beams could be arranged to provide higher gain than available by use of a single wide beam sector antenna. However, for a multi-beam antenna the antenna pattern gain provided at beam crossovers between adjacent narrow beams will be significantly lower than the peak gain provided along the beam centerline of each narrow beam. For full sector coverage, the improvement in gain achieved by replacement of a single wide beam sector antennas with antennas providing two or more narrower beams is, therefore, limited by the effective gain provided at the crossover between adjacent beams." Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention was made to use multiple narrow antenna patterns and a wide antenna pattern to compute or determine antenna gain differences because in order to compute the antenna gain differences, it would require at least two different antenna patterns to take into considerations, and that is a multiple narrow beam, and a wide beam. It is also obvious to one skilled in the art that the antenna gain differences could be stored on any computer-readable medium such as non-volatile memory, or a database.

6.   Claims 4-9, 27-31, and 88-90 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Benes.

Regarding claim 4, Benes discloses the system of claim 1 as described above.

Benes also discloses wherein said database associates ones of said antenna gain

differences in antenna gain difference sets (paragraph 0021).

The Examiner notes that since the Applicant does not specifically describe what

or how antenna gain difference sets is defined in the claim. Therefore, the Examiner

broadly interprets, or one skilled in the art would conceptualize that an antenna gain

difference set is a group of at least two or more. Since, Benes describes steps of how

to determine, or compute gain difference between the first and second downlink signals.

It is, therefore, obvious to one skilled in the art that database associates ones of said

antenna gain differences in antenna gain difference sets.

Regarding claim 5, Benes discloses the system of claim 4 as described above.

Benes also discloses wherein each antenna gain difference set includes angle

information (paragraph 0022).

Regarding claim 6, Benes discloses the system of claim 5 as described above.

Benes further discloses wherein said angle information comprises an azimuthal angle of

a vector pointing from said wireless network access node to said device (paragraph

0023).

Regarding claim 7, Benes discloses the system of claim 4 as described above.

Benes also discloses wherein antenna gain difference sets include antenna gain

differences of a plurality of wireless network access nodes (paragraph 0018).

Regarding claim 8, Benes discloses the system of claim 7 as described above. Benes further discloses wherein said antenna gain difference sets including antenna gain differences of a plurality of wireless network access nodes include position information (paragraph 0020).

Regarding claim 9, Benes discloses the system of claim 1 as described above, except for disclosing the method applying to a second wireless network access node. However, it is obvious to one skilled in the art that if Benes fully discloses all the steps as claimed in claim 1, then the same steps could be applied to the second wireless network access node.

Regarding claims 27-31, and 88-90, Benes discloses the system of claims 1, and 75 as described above. Benes, however, does not specifically disclose a security logic preventing access to a wireless network, location based access security logic for providing levels of access to a wireless network, content. However, it is obvious to one skilled in the art that once a location of the device is identified or determined, then one skilled in the art would be able to utilize the location information to beam or deliver information, advertisement to the particular device or user. Furthermore, based on the location determination, then one skilled in the art would be able to have a control over it. Hence, a security logic, location-based access security logic for providing levels of access to wireless, content delivery logic for providing content, or management logic for providing management are solely a design decision; and therefore, it is obvious to one skilled in the art, and it is not novel.

7.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in

view of Riley (US – 6,865,395 B2).

Regarding claim 10, Benes discloses the system of claim 9 as described above,

except location estimation logic for determining an estimated location of said device

from an intersection point of vectors projected from said wireless network access node

and said second wireless network access node (fig. 2, and its descriptions).

In a similar endeavor, Riley discloses an area based position determination for

terminals in a wireless network. Riley also discloses location estimation logic for

determining an estimated location of said device from an intersection point of vectors

projected from said wireless network access node and said second wireless network

access node (fig. 2, and its descriptions).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include a method of estimating location of a device from an

intersection point of vector projected from the wireless network access node because

this is one of the desirable methods in determining the location.

8.   Claims 11-21, 23-26, 32-37, 77-85, and 107 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Benes in view of Reed (hereinafter "Reed", US –

6,148,211).

Regarding claim 11, Benes discloses the system of claim 9 as described above,

except location estimation logic for determining an estimated location of said device

from position information stored in association with said closest match of said antenna gain differences.

In a similar endeavor, Reed discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match (col. 6, lines 58-67). Also, Benes on the other hand discloses antenna gain differences as a factor in determining the location of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes with Reed's invention to arrive at the present invention because by comparing the measured with the predicted data improve the location prediction error rate.

Regarding claims 12-14, and 24-26, Benes discloses the system of claim 1 as described above, except wherein said calculation logic, said comparison logic, and said measurement logic are disposed at a centralized system in communication with a plurality of wireless network access nodes, a distributed configuration, or within said wireless network access node.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses said calculation logic and said comparison logic are disposed at a centralized system in communication with a plurality of wireless network access nodes (col. 5, lines 22-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area to arrive at the present feature because it is

more efficient to have a centralized system to compute all the data in determining the

location of the device. Furthermore, the Examiner also notices that even though the

cited references do not specifically disclose different types or exactly where the

calculation logic, comparison logic, and measurement logic are disposed. However, it is

obvious to one skilled in the art to modify by disposing the calculation logic, comparison

logic, and measurement logic at a distribution configuration or within the wireless

network access node without alternating the functionalities of these logics.

Regarding claim 15, Benes discloses the system of claim 1 as described above,

but fails to teach claim 15 limitations.

In a similar endeavor, Reed discloses a method and system for estimating a

subscriber's location in a cluttered area. Reed further discloses:

- a database (col. 6, lines 27-57) containing predicted receive signal

    strength information for said multiple antenna patterns of said wireless

    network access node (col. 5, lines 39-67);

- measurement logic for measuring receive signal strengths of a signal

    received from said device using said multiple antenna patterns (col. 6,

    line 58 – col. 7, line 12);

- comparison logic for comparing said measured receive signal strengths

    to said predicted receive signal strength information and identifying a

    closest match (col. 7, lines 13-40, and col. 8, lines 23-56).

It would have been obvious to one of ordinary skill in the art at the time the invention to incorporate Reed's invention as an alternative method in determining the location or position of a device.

Regarding claims 16-17, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said database containing predicted receive signal strength information associates predicted receive signal strength information in sets having a distance/position associated therewith (col. 6, lines 35-43).

Regarding claim 18, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said predicted receive signal strength information is predicted using a generic propagation model (col. 5, lines 22-38).

Regarding claim 19, Benes and Reed disclose the system of claim 15 as described above. Reed also discloses wherein said predicted receive signal strength information includes predicted receive signal strength information of a plurality of wireless network access nodes (fig. 5 and its descriptions).

Regarding claims 20, and 79, Benes and Reed disclose the system, and method of claims 15, and 75 as described above. Since Reed discloses all the steps as claimed in claim 15. It is therefore obvious to one skilled in the art that the same steps could be performed for the second wireless network access node. Hence, the Examiner rejects claims 20 and 79 for the same reasons set forth in rejected claim 15.

Regarding claim 21, Benes and Reed both disclose the system of claim 20 as described above. Benes further discloses comprising: location estimation logic for determining an estimated location of said device from an intersection point of arcs

projected identified distances from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

Regarding claim 23, Benes and Reed disclose the system of claim 20 as described above. Reed further discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match of said predicted receive signal strength information (col. 7, lines 13-41).

Regarding claim 32, Benes discloses the system of claim 1 as described above, except wherein said closest match is utilized in identifying location of said device in a service area of a wireless network.

In a similar endeavor, Reed discloses a method and system for estimating a subscriber's location in a cluttered area. Reed further discloses wherein said closest match is utilized in identifying location of said device in a service area of a wireless network (col. 7, lines 13-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area because by comparing the estimated or predicted and the measured value to find the closest match in Reed's disclosure is to determine the location of the device in a particular service area of a wireless network.

Regarding claims 33-37, Benes and Reed both disclose the system of claims 32 as described above. Even though Reed only discloses a cellular network, but do not specifically disclose all different types of a wireless network as claims in claims 33-37.

However, one skilled in the art would conceptualize that **wireless network** could be one

of the networks as claimed in claims 33-37.

Regarding claim 77, Benes discloses the method of claim 76 as described

above. Benes, however, fails to disclose estimating a position of said device as a

function of said direction.

In a similar endeavor, Reed discloses a method and system for estimating a

subscriber's location in a cluttered area. Reed further discloses estimating a position of

said device as a function of said direction.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include an estimating a position of the device as a function of

direction because predicting the direction is part of detecting the position of the device.

Regarding claim 78, Benes discloses the method of claim 76 as described

above. Benes, however, fails to disclose identifying a position stored in associated with

said closest match.

In a similar endeavor, Reed discloses a method and system for estimating a

subscriber's location in a cluttered area. Reed further discloses identifying a position

stored in associated with said closest match (col. 7, lines 13-40).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the method of identifying a position stored in associated

with said closest match so that the position of the device could be predicted or

estimated more precisely.

Regarding claim 80, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences; and identifying a distance associated with said closest match of said receive signal strengths (paragraphs 0028-0030).

Regarding claim 81, Benes and Reed disclose the method of claim 80 as described above. Benes also discloses estimating a position of said device as a function of said direction and said distance (paragraphs 0028-0030).

Regarding claim 82, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences (paragraph 0026); and identifying a position associated with said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 83, Benes and Reed disclose the method of claim 79 as described above. Benes also discloses estimating a position of said device as a function of said closest match of said antenna gain differences (paragraph 0026); and separately estimating a position of said device as a function of said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 84, Benes and Reed disclose the method of claim 83 as described above. Reed also discloses wherein a one of said position estimates is used to confirm the other of said position estimates (col. 1, lines 1-21).

Regarding claim 85, Benes and Reed disclose the method of claim 79 as described above. Benes further describes identifying a position associated with said

closest match of said antenna gain differences (paragraph 0026); identifying a position

associated with said closest match of said receive signal strengths (paragraph 0027);

and estimating a position of said device as a function of said position associated with

said antenna gain differences and said position associated with said receive signal

strengths (paragraph 0026-0028).

Regarding claim 107, Benes discloses the system of claim 105 as described

above. Benes, however, does not specifically disclose said channel model based

determination algorithm further utilizes signal strength prediction provided by modeling

an environment of said wireless network.

In a similar endeavor, Reed discloses a method and system for estimating a

subscriber's location in a cluttered area. Reed further discloses said channel model

based determination algorithm further utilizes signal strength prediction provided by

modeling an environment of said wireless network (col. 5, lines 13-38).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the predicted signal strength to precisely make a

comparison and determine the location of the device.

9.   Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benes in

view of Reed, further in view of Riley.

Regarding claim 22, Benes and Reed both disclose the system of claim 20 as

described above, except location estimation logic for determining an estimated location

of said device from a midpoint of positions associated with said closest matches from

said wireless network access node and said second wireless network access node.

In a similar endeavor, Riley discloses an area based position determination for

terminals in a wireless network. Riley also discloses location estimation logic for

determining an estimated location of said device from a midpoint of positions associated

with said closest matches from said wireless network access node and said second

wireless network access node (col. 6, lines 48-65).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include a step of determining an estimated location of the device

from a midpoint of positions associated with closest matches because the midpoint

positions between the first and second wireless network access node could be an

appropriate approximation location of the device.

10.   Claims 38-42, 45-49, and 59-74 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Reed in view of Riley.

Regarding claim 38, Reed discloses a system, and a method comprising:

-         a database (col. 6, lines 27-57) containing predicted receive signal

          strength information for multiple antenna patterns (i.e., calculate signal

          characteristics associated with the reception) of a wireless network

          access node (col. 5, lines 39-67);

The Examiner also notes that since the reference discloses that the system could

predict receive signal strength information for multiple antenna patterns of multiple base

stations, it is obvious that a predicted signal strength for a wireless network access node could also be calculated.

- measurement logic for measuring receive signal strengths of a signal received using said multiple antenna patterns, said signal being transmitted by a device disposed within one or more of said multiple antenna patterns (col. 6, line 58 – col. 7, line 12);

- comparison logic for comparing said measured receive signal strengths to said predicted receive signal strength information and identifying a closest match (col. 7, lines 13-40, and col. 8, lines 23-56), wherein said database further contains predicted receive signal strength information for multiple antenna patterns of a second wireless network access node, said measurement logic is further for measuring receive signal strengths of a signal received from said device using said multiple antenna patterns of said second wireless network access node, and said comparison logic is further for comparing said measured receive signal strengths of said second wireless network access node to said predicted receive signal strength information of said second wireless network access node and identifying a closest match (i.e., to calculate signal characteristic associated with the reception as described above, but the calculation is applied to the second wireless network access node (i.e., second base station antenna 168. See col. 6, lines 35-43);

Except:

location estimation logic for determining an estimated location of said device from an intersection point of arcs protected identified distances from said wireless network access node and said second wireless network access node.

In a similar endeavor, Riley discloses an area based position determination for terminals in a wireless network. Riley also discloses location estimation logic for determining an estimated location of said device from an intersection point of arcs protected identified distances from said wireless network access node and said second wireless network access node (fig. 2, and its descriptions).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a method of estimating location of a device from an intersection point of vector projected from the wireless network access node because this is one of the desirable methods in determining the location.

Regarding claims 39-40, Reed and Riley disclose the system of claim 38. Riley further discloses wherein said database associates predicted receive signal strength information in sets of multiple antenna patterns having a distance/position associated therewith (col. 6, lines 35-43).

Regarding claim 41, Reed and Riley disclose the system of claim 38 as described above. Riley also discloses wherein said predicted receive signal strength information is predicted using a generic propagation model (col. 5, lines 22-28).

Regarding claim 42, Reed and Riley disclose the system of claim 38 as described above. Reed also discloses wherein said predicted receive signal strength

information includes predicted receive signal strength information of a plurality of wireless network access nodes (fig. 5 and its descriptions).

Regarding claim 45, Reed and Riley disclose the system of claim 43 as described above. Riley also discloses location estimation logic for determining an estimated location of said device from a midpoint of positions associated with said closest matches from said wireless network access node and said second wireless network access node (col. 6, lines 48-65).

Regarding claim 46, Reed and Riley disclose the system of claim 43 as described above. Reed also discloses location estimation logic for determining an estimated location of said device from position information stored in association with said closest match (col. 6, lines 58-67).

Regarding claims 47-49, 59-63, Reed discloses the system of claim 38 as described above, Reed further discloses said calculation logic and said comparison logic are disposed at a centralized system in communication with a plurality of wireless network access nodes (col. 5, lines 22-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Benes' invention with Reed's method of estimating a subscriber's location in a cluttered area to arrive at the present feature because it is more efficient to have a centralized system to compute all the data in determining the location of the device. Furthermore, the Examiner also notices that even though the cited references do not specifically disclose different types or exactly where the calculation logic and comparison logic are disposed. However, it is obvious to one

skilled in the art to modify by disposing the calculation logic and comparison logic at a distribution configuration or within the wireless network access node without alternating the functionalities of these logics.

Regarding claims 64-68, Reed and Riley disclose the system as described above. The cited references, however, do not specifically disclose a security logic preventing access to a wireless network, location based access security logic for providing levels of access to a wireless network, content. However, it is obvious to one skilled in the art that once a location of the device is identified or determined, then one skilled in the art would be able to utilize the location information to beam or deliver information, advertisement to the particular device or user. Furthermore, based on the location determination, then one skilled in the art would be able to have a control over it. Hence, a security logic, location-based access security logic for providing levels of access to wireless, content delivery logic for providing content, or management logic for providing management are solely a design decision; and therefore, it is obvious to one skilled in the art, and it is not novel.

Regarding claim 69, Reed and Riley disclose the system of claim 38 as described above. Reed further discloses wherein said closest match is utilized in identifying a location of said device in a service area of a wireless network (col. 7, lines 13-40).

Regarding claims 70-74, Reed both discloses the system of claims 69 as described above. Even though Reed only discloses a cellular network, but do not specifically disclose all different types of a wireless network as claims in claims 70-74.

However, one skilled in the art would conceptualize that **wireless network** could be one

of the networks as claimed in claims 70-74.

11.   Claims 50-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Reed in view of Riley, and further in view of Benes.

Regarding claim 50, Reed, and Riley disclose a system as described in claim

38, but Reed does not specifically disclose this claim feature.

In a similar endeavor, Benes discloses a method and mobile station for

autonomously determining an angle of arrival estimation. Benes further discloses:

a database (i.e., a data storage, paragraph 0028) containing antenna gain

differences between multiple antenna patterns of a wireless network access node

(paragraphs 0021-0023);

calculation logic for determining receive signal strength differences of a signal

received using said multiple antenna patterns, said signal being transmitted by a device

disposed within one or more of said multiple antenna patterns (paragraph 0026);

comparison logic for comparing said receive signal strength differences to said

antenna gain differences and identifying a closest match (paragraph 0027).

Hence, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to include a system having a computation of antenna gain

differences and receive signal strength in order to determine the location of the device.

Regarding claim 51, Reed, Riley, and Benes disclose the system of claim 50 as described above. Benes also discloses wherein said database associates ones of said antenna gain differences in antenna gain difference sets (paragraph 0021).

The Examiner notes that since the Applicant does not specifically describe what or how antenna gain difference sets is defined in the claim. Therefore, the Examiner broadly interprets, or one skilled in the art would conceptualize that an antenna gain difference set is a group of at least two or more. Since, Benes describes steps of how to determine, or compute gain difference between the first and second downlink signals. It is, therefore, obvious to one skilled in the art that database associates ones of said antenna gain differences in antenna gain difference sets.

Regarding claim 52, Reed, Riley, and Benes disclose the system of claim 51 as described above. Benes also discloses wherein each antenna gain difference set includes angle information (paragraph 0022).

Regarding claim 53, Reed, Riley, and Benes discloses the system of claim 51 as described above. Benes further discloses wherein said antenna gain difference sets include position information (paragraph 0020).

Regarding claim 54, Reed, and Benes disclose the system of claim 51 as described above. Benes also discloses wherein antenna gain difference sets include antenna gain differences of a plurality of wireless network access nodes (paragraph 0018).

Regarding claim 55, Reed, Riley, and Benes disclose the system of claim 51 as

described above. Benes further discloses wherein said antenna gain difference sets

include position information (paragraph 0020).

Regarding claim 56, Reed, Riley, and Benes disclose the system of claim 50 as

described above. Riley also discloses wherein said database containing antenna gain

differences further contains antenna gain differences between multiple antenna patterns

of a second wireless network access node (col. 6, lines 13-24), said calculation logic is

further for determining receive signal strength differences of a signal received from said

device using said multiple antenna patterns of said second wireless network access

node (col. 6, lines 13-24), and said comparison logic for comparing said receive signal

strength differences is further for comparing said receive signal strength differences of

said second wireless network access node to said antenna gain differences and

identifying a closest match (col.6, lines 25-30).

Regarding claim 57, Reed, Riley, and Benes disclose the system of claims 56

as described above. Riley also discloses an area based position determination for

terminals in a wireless network. Riley also discloses location estimation logic for

determining an estimated location of said device from an intersection point of vectors

projected from said wireless network access node and said second wireless network

access node (fig. 2, and its descriptions).

Regarding claim 58, Reed, Riley, and Benes disclose the system of claim 56 as

described above. Reed further discloses location estimation logic for determining an

estimated location of said device from position information stored in association with

said closest match (col. 6, lines 58-67). Also, Benes on the other hand discloses

antenna gain differences as a factor in determining the location of the device.

12.   Claims 91-94, and 102-104 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Reed.

Regarding claim 91, Reed discloses a method for providing information useful in

determining a position of a device within a wireless network, said method comprising:

predicting receive signal strength information for multiple antenna patterns of a

wireless network access node (col. 5, lines 39-67 teaches calculating signal

characteristics associated with reception signals);

comparing measured receive signal strengths to said predicted receive signal

strength information and identifying a closest match (col. 7, lines 13-40, and col. 8, lines

23-56);

calculating antenna gain differences between multiple antenna patterns of a

wireless network access node (paragraphs 0021-0023);

determining receive signal strength differences of a signal received using said

multiple antenna patterns, said signal being transmitted by a device disposed within one

or more of said multiple antenna patterns (paragraph 0026);

comparing logic for comparing said receive signal strength differences to said

antenna gain differences and identifying a closest match (paragraph 0027).

estimating a position of said device as a function of said closest match of said

antenna gain differences (paragraph 0026); and

separately estimating a position of said device as a function of said closest match

of said receive signal strengths (paragraph 0027).

Reed fails to teach wherein a one of said position estimates is used to confirm

the other of said position estimates.

Even though the cited reference does not specifically teach or suggest wherein a

one of said position estimates is used to confirm the other of said position estimates.

However, claim scope is not limited by claim language that suggests or makes optional

but does not require steps to be performed, or by claim language that does not limit a

claim to a particular structure (see MPEP 2111.04).

Regarding claim 92, Reed discloses a method of claim 91 as described above.

Reed also discloses identifying a distance associated with said closest match (col. 5,

lines 39-46, col. 7, lines 13-41).

Regarding claim 93, Reed discloses a method of claim 91 as described above.

Reed further discloses estimating a position of said device as a function of said distance

(col. 7, lines 13-41).

Regarding claim 94, Reed discloses a method of claim 91 as described above.

Reed also discloses identifying a position associated with said closest match (col. 5,

lines 39-46, col. 7, lines 13-41).

Regarding claims 102-104, Reed discloses all limitations as described in claim

91 above. Reed, however, does not specifically disclose a security logic preventing

access to a wireless network, location based access security logic for providing levels of

access to a wireless network, content. However, it is obvious to one skilled in the art

that once a location of the device is identified or determined, then one skilled in the art

would be able to utilize the location information to beam or deliver information,

advertisement to the particular device or user. Furthermore, based on the location

determination, then one skilled in the art would be able to have a control over it. Hence,

a security logic, location-based access security logic for providing levels of access to

wireless, content delivery logic for providing content, or management logic for providing

management are solely a design decision; and therefore, it is obvious to one skilled in

the art, and it is not novel.

13.   Claims 96-98, and 101 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Reed in view of Benes.

Regarding claim 96, Reed the method of claim 91 as described above, but

Reed does not specifically teach identifying a direction associated with said closest

match of said antenna gain differences; and identifying a distance associated with said

closest match of said receive signal strengths.

In a similar endeavor, Benes discloses a method and mobile station for

autonomously determining an angle of arrival (AOA) estimation. Benes further

discloses identifying a direction associated with said closest match of said antenna gain

differences; and identifying a distance associated with said closest match of said

receive signal strengths (paragraphs 0028-0030).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine Reed's method of estimating a subscriber's location in

a cluttered area with Benes' method of identifying a direction and gain differences associated with the closest match in order to determine or estimate the position of device more accurately.

Regarding claim 97, Reed, and Benes disclose the method of claim 96 as described above. Benes also discloses estimating a position of said device as a function of said direction and said distance (paragraphs 0028-0030).

Regarding claim 98, Reed and Benes disclose the method of claim 91 as described above. Benes also discloses identifying a direction associated with said closest match of said antenna gain differences (paragraph 0026); and identifying a position associated with said closest match of said receive signal strengths (paragraph 0027).

Regarding claim 101, Reed and Benes disclose the method of claim 91 as described above. Benes further describes identifying a position associated with said closest match of said antenna gain differences (paragraph 0026); identifying a position associated with said closest match of said receive signal strengths (paragraph 0027); and estimating a position of said device as a function of said position associated with said antenna gain differences and said position associated with said receive signal strengths (paragraph 0026-0028).

Conclusion

14.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
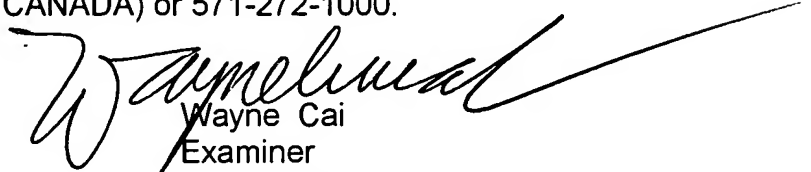
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday-Friday; 9:00-6:00; alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Wayne Cai
Examiner
Art Unit 2617

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PRIMARY EXAMINER